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BLUE VERBENA OR SPIRÆA.

AS the *Caryopteris Mastacanthus* is not a spiræa we call it a Blue Verbena, but it is not a verbena and so we say Blue Spiræa, and at the same time know it is not one or the other, but a *Caryopteris*, only this and nothing more. This is a specimen of an inconsistency in applying common names to plants that appears very frequently. If a common name must be given something appropriate should be applied. The form of the flower cluster on each stem, or little branch, is that of a bottle brush, and the name of Blue Bottle-brush is suggested for the others which every one holds in doubt, and is always ready to ask an apology for using.

But the plant is not to blame for the bad name put upon it. It is a good thrifty grower and blooms profusely, and is quite different in appearance from any of the other cultivated plants. It is a fact that it belongs to the verbena family, but it does not resemble a verbena any more than a strawberry does an apple, which are both members of the rose family. The illustration here presented gives a very fair idea of the plant, its mode of growth and flowering. It makes a growth of about two feet, very branching, with good clean foliage, and the blooming season is a long one. Planted out in the garden in full exposure to the sun, in good soil, it will display itself to the satisfaction of any plant lover. It has the reputation of being pretty hardy. Probably not enough so to stand our northern winters, at least without very full protection. Probably at Washington and southwards it will prove quite hardy. A writer in the *Gardeners' Chronicle* says that it is an excellent bee plant. "During the season of flowering," he says, "from July to the middle of October, I have seen every day thousands of honey bees visit a group of *Caryopteris Mastacanthus*, and they gave a continual movement to the plants by their going to and fro. It is also an elegant plant for the ornament of the gardens, on account of its long period of flowering."

The plant should have room to develop and though it may be planted in groups, each plant should have a space of eighteen or twenty inches or even more.

IN EARLY SPRING.

SPRING often seems still impossible the last days of March; the smooth snow spreads afar through the forest with the bluish shadows of the trees lying upon it, and the drifts may be higher than ever. But at last the sun prevails, the snow water goes roaring down the creeks and the earth emerges. On this day of mildness and calm with the dull sun warming the dead leaf beds and an alpine haze tinting the distance, Nature, in the hush of the afternoon, seems bethinking herself of the vast array of foliage, flowers, and fruits she is to bring



BLUE BOTTLE BRUSH OR SHRUBBY VERBENA,
CARYOPTERIS MASTACANTHUS.

forth, of her immense labors which yet are, or seem, pleasures. The buds of the garden crocus may unclothe the day after the drift has gone from over them; but growth, though it may and does begin beneath the snow, is slight, and no flowers are in the forest to-day. But the feel of the ground, already firm and elastic, is pleasant to the foot; there is a fresh red on the soft maples twigs and buds along the woodside; let us go forth. Against the brown and gray of dead leaves and grass a little green attracts the eye from afar, but to-day's gathering must be the

hardy evergreens that have been covered by the snow so long we have almost forgotten them. Here, in the rich, damp wood, are beds of ferns so thick that the ground is more green than brown, as fresh and bright as ever they were, though really *effete* and soon to pass away. Nestling closely together, the large, light brown buds, just under the dead leaves, crown the creeping root, waiting their time to unfold; it is the Christmas fern or "shoe brake," *Aspidium achrostichoides*. It is of interest to note the differing leaf forms of the same species, and these fronds are of great size and substance, dark tinted and toothed in a fashion which compared with the ordinary sorts may be called ferocious. This fern has a row of smooth leathery leaflets each side the scaly rachis, tapering upward to very small ones, some of which are covered with a thick brown scurf on the underside—the remains of the seed vessels. The fronds of this fern, erect last summer, now lie flat upon or under the dead leaves. Close by are quantities of a much larger, light green fern, the fronds of which are cut into many divisions; a large one may have eight thousand or more segments. This is the wood fern, *Aspidium spinulosum*. Another *Aspidium* is thicker and darker with rounding teeth (crenate); its segments are larger and less numerous than the others. The fronds of both of these species may be two feet long and eight inches wide at the base; both have single, minute fruit dots on the back of some of the fronds. These three are the most common evergreen ferns. A few others—the walking fern, the rock polypod, and the crested shield fern

are more rare or local; all are graceful and beautiful, with a fresh woody odor. To see patches of the rock fern or polypod, *Polypodium vulgare*, on the ground is a good sign that the bed rock, though covered, is near the surface, and it covers these great blocks of stone with dense mats of evergreen fronds with only a little decayed vegetable matter for a soil. Here on the craggy brink of the glen the edges of the strata, projecting like shelves, are decorated with it, waving above the foaming stream a hundred feet below. Peel off a good sod of mingled

ferns and moss and put it in a soup plate, and it will keep fresh and bright, if watered, all winter. The walking leaf, *Camptosorus rhizophyllus*, is a rare fern. An escarpment of glacial gravel cemented by recent springs of lime water is its only habitat here. A little crevice filled with mould is soil enough, and its long narrow undivided fronds root at the tips if any soil can be found, and thus the plant walks up or down these rough rocks. A piece of rocky ground is a veritable winter garden in strong contrast to the dead leaf carpet that covers the smoother tracts, and smothers so many evergreens.

Summer foliage is dull beside the vivid tints of the mosses that cover some of these stones and there is a thick growth of ferns, lycopodiums, lichens of all colors, saxifragas, orchids and many others. All my five lycopods, except one, retain their form when dry, and nothing in its way can be finer than a plant of ground pine, *L. complanatum*, with its short, erect branches, like wide open fans, growing smaller and smaller toward the tip, which is at last a long runner engraved all over with the forms of leaves. Lycopods colored with Diamond Dye for cotton are greener than when fresh, and are a resource in connection with everlasting flowers and grasses.

It is April and growth has advanced somewhat, but there is a steely blue sky and a keen breath from the north. Still, the dead leaf beds sloping to the sun are warm and dry. Here, amidst pines and birches I have come upon patches of Mayflowers or trailing arbutus, *Epigaea repens*, I had almost said the loveliest of all wild flowers. There is a sod of wintergreen, partridge berry and gold-thread all about, and some of the arbutus flowers are hidden by the dead bracken, that lie as they fell. It is a slow growing plant—I can see that this little branch, six inches long, is five years old; a little prostrate woody shrub in fact, much too famous and beautiful for its own good, as our flower seekers soon exterminate it. Belonging to the primeval forest it can come to no terms with cultivation. Its stem is thick with rusty hairs, which also cover the upper side and margin of the tough, evergreen leaves that are smooth and shining below. The pure white tubes of the clustered flowers, supported by a red or brown calyx, merge into the five pink petals, the throat being filled with a mass of hairs. Delicate colors and fragrance, fine foliage and perfect grace, all are here. And yet the world its flowers see is chilly and gray, with lingering snow patches and shadeless and leafless woods. Nature, prodigal of beauty, sends it forth almost alone; there is enough else to form the crown of the summer.

On this steep bluff, lying to the sun, are great beds of bloodroot, *Sanguinaria canadensis*, in full bloom, while a great snow bank covers the opposite slope, and

now that the sun is low, and I am in the shadow of the main hill, it is too cold for comfort, but many of the bloodroot petals have fallen already, so early and ephemeral are they. There are four or six wide, pure white petals, and as many narrow ones, placed alternately, and a tuft of golden stamens. One day in the midst of a gentle rain which made them close I came upon a bed of bloodroot flowers that were a pale violet outside, but they are mostly pure white outside and in. It is a bright, beautiful flower, looking straight up, and commonly numerous where it grows at all.

E. S. GILBERT.

Canaseraga, N. Y.

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STROBILANTHES DYERIANUS.

THIS plant, lately introduced, will probably come into considerable use for bedding, as a foliage plant. We should judge that it would not bear clipping so well as the coleus and achyranthes, but should be employed more as is the *Acalypha*, allowing it to stand singly among other bedders and to develop itself without much restriction, forming a contrast with other foliage. The leaves have different metallic tints of purple and green and bluish green, and are very pleasing in appearance. The plant makes an excellent foliage plant for the greenhouse and adapts itself well to window culture, as we have proved. And yet, we have not seen it in bloom. The flowers are said to be handsome, trumpet-shaped, of a fine blue color. What the conditions are for flowering we have not yet learned, but even without the flowers it is a very worthy and desirable plant. It does not appear that anyone has yet attempted to coin an English name for this plant, and we hope none will do so. One cannot understand why it is not as easy to say *strobilanthes* as to say *petunia*, or *verbena*, or *chrysanthemum*, all of which are botanical names; we have become accustomed to these, and so have no difficulty with them. We can as well become accustomed to others.

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THE INVISIBLE FRIENDS AND ENEMIES OF THE FRUIT GROWER.

THE fruit-grower, as well as all other plant growers, should carefully consider the soil that must inevitably play a major part in success or failure. Its slope, its texture, its ability to retain or part with moisture, and the amount and kinds of plant food available and unavailable which it carries are all of prime importance.

The soil must be the permanent home of the plant. It cannot be moved to its food. Its nourishment must be brought into intimate relation with its roots, and in a great measure its food must be prepared. The more perfect the food, or the better it is prepared, and the more comfortable the environment, the more assured the success. All this will appear

to be axiomatic, but in many cases it is clear that these self-evident truths have been forgotten or the understanding has been too slow or careless to grasp them.

Before the higher class of organisms can flourish a lower class of invisible ones must precede. Moisture is found most commonly so minutely divided that it is not perceptible to the unassisted vision. Many of our invisible friends, and enemies, too, for that matter, have been badly neglected. The advance in agriculture makes a more intimate acquaintance with our neglected and abused friends imperative.

The soil teems with invisible plants or low organisms of vegetable life, invisible catch crops, pioneers, which prepare the way for more complex organisms, the common cultivated plants, by setting free or making available the tough nitrogen in the soil. These invisible plants, like the visible ones, must have comfortable environment. A certain amount of air, moisture and warmth are necessary for rapid development and growth.

This change from the albumenoid to the nitrogen stage is necessary, as plants get nearly all of this class of nourishment from nitrogen and not from albumenoids, hence the great value and use of these unseen and unappreciated friends of the farmer.

All is changed or changing. The plant is now the farmer's friend; he can commune with it. It has life and development. It languishes if hungry, droops if thirsty, and shows pain when its roots are placed in rough stocks of clay and stone.

Discovery of some of nature's modes of action has led to questioning the soil and the plant. It has made the thoughtful man an attentive listener and a close observer. He has learned that the soil contains many friends, both animal and vegetable.

The nitrifying organisms which are ever at work breaking down and changing crude and useless material and transforming it into a high class of plant food, although invisible to the unaided sight, are worthy of the most careful attention. Although he cannot see these myriad invisible vegetable organisms, he can note their effect, and reasoning from cause to effect he soon discovers that these nitrifying plants, like other vegetable growths, flourish best when their home is mellow, warm, dark and moist.

Three to six thousand pounds of potential nitrogen is found in the first foot of an acre of fairly fertile soil; if the best conditions for the multiplication of the nitrifying organisms are secured, most of this may be made available for the plant.

If, then, the culture of the soil were what it might be, and should be, this vast storehouse of useless plant food would be unlocked and its treasures put into circulation and finally returned to the land only slightly diminished in quality

and much improved in quality. If these things be so, it is good economy to purchase commercial nitrogen and leave that in the soil unused, being unavailable because the half tilled earth is not an ideal home for these valued friends of the farmer.

All trees and shrubs flourish best when supplied with a fairly liberal amount of this stimulating plant food, nitrogen, in the earlier stages of their growth. Few of them are able to get it from the atmosphere. The soil, the rain and the nitrifying organisms can supply it if they work in harmony with nature's modes of action.

Manœuvering the soil by culture tends to promote nitrification and also tends to make available the mineral elements, phosphoric acid and potash. All these laws point to a short rotation, frequent plowing, partial soiling, the use of leguminous plants and a more intensified agriculture.

Land that is water-logged is never prolific in nitrifying organisms. Here dwell the enemies of the farmer, those denitrifying organisms which change this expensive plant food into forms which cannot be used by the higher plants. The nitrifying organisms cannot prosper when supersaturated with moisture, hence as a rule, in all lands not naturally drained artificial drainage should be supplied.

The plow, both surface and sub-soil, and other implements of culture are used primarily to promote nitrification and chemical action, and not for the purpose of making the soil porous in order that the roots of plants may enter it easily. It should be emphasized more fully than it has been that the objects of cultivation are primarily and chiefly for the purpose of promoting invisible vegetable growth and chemical action in the soil and for the purpose of forming a reservoir which, while holding on to microscopic water, will allow free water to pass downward into the sub-soil. All this implies labor and expense, and so in many cases the same objects may be partially or wholly secured by the use of leguminous plants.

It would seem that with the present advanced knowledge of agriculture there should be little need in the future of providing, by the use of commercial mixtures, this high-priced though necessary constituent of plant life. Except in rare cases the cost of nitrogen may be eliminated from the expense account, because when all is considered and a comparative view is taken of the subject, nitrogen can be procured literally at no cost.

Where it is not feasible or wise to practice this intensified agriculture, leguminous plants may be used to great

advantage, for they accomplish in their silent way all and sometimes more than culture does, and hence should be used to supplement the forces which lie in the plow handles.

WATER.

Water, or moisture, plays such an important part in successful agriculture that it should receive most careful attention. Neither the lower or higher organisms can flourish without it. However much plant food may be in the land, however fine the tilth of the soil, no plant growth can take place except in the presence of water in some form. It is nature's universal carrier, it transports all nutrition into and out of the circulation of all animal and vegetable growth. It is not only capable of lifting millions of tons of solid matter from a few inches to hundreds of feet in the stems and trunks of trees and smaller plants, but is capable of

prepared soils are capable of holding about 30 per cent. of their own weight of moisture by capillarity, and yet not contain any free or flowing water.

Water may rise fully three feet by capillary force alone. Three feet of soil weighs 5,400 tons per acre. Thirty per cent. of this is 1,620 tons, or 3,240,000 pounds, or 400,000 gallons. This is nature's great reservoir, from which plants draw their moisture. If this reservoir is but six inches deep, the more common depth, it will hold but one sixth as much, hence plants grown over this small reservoir would likely droop in dry weather. Ample reservoirs secured by means of under drainage, culture and tap-rooted plants bid defiance to any reasonable drought. Having provided a supply of water, the next effort is to make as much of it as possible pass through the plant and allow as little as possible to evaporate

from the surface. This is done by keeping the soil so porous and loose for two or three inches at the surface that water cannot pass upwards except through the plants.

Beneath our feet, then, are found ever acting, kindly forces and unnumbered forms of vegetation, all waiting to be guided and directed into useful channels by the skill of the husbandman.—*Read before the W. N. Y. Hort. Soc'y.* by Prof. J. P. Roberts.

SOME DESIRABLE CLIMBERS.

IT is my purpose to mention those climbers only which can be raised from seed each year, and treated as annuals. Many people prefer them to perennials for several reasons. They do not make a dense shade as early in the season as an established vine, but if the seed is started early in the house and planted out in May,

the plants grow rapidly and several of the sorts mentioned will reach a height of twenty-five or thirty feet before the end of the season. The Ipomœa, or moon-flower family furnish us the finest flowering climbers that we have among annuals; Ipomœa grandiflora and I. bona nox are too well known to need any description, but the following are newer sorts:

I. Learii, a native of Ceylon, is a handsome, quick growing vine and a lovely sort to grow with the white varieties. Its blossoms are large, flowering in clusters, each individual blossom being four or five inches in diameter, of a lovely rich shade of blue and having reddish purple rays lengthwise through the flower. It opens in the morning and closes when the sun becomes hot, but remains open all day when the weather is damp and cloudy.

I. grandiflora superba is a grand sort, having very large flowers of a deep sky



STROBILANTHES DYERIANUS.

breaking the hardest rock, leveling hills and mountains and transporting them to the seas. Most of this work is done quietly, that is, unseen and unnoticed by the casual observer. Nearly all the moisture used by plants is brought to them by the silent forces of capillarity. If the soil is in the proper physical condition moisture flows upwards to the roots of vegetation from the great reservoirs in the sub-soil as nearly and as certainly as it runs downward by gravitation.

The more the subject is studied the deeper is found the real underlying principles of successful husbandry. There should be an ample reservoir in the soil for the storage of moisture to tide over plants at critical periods. This moisture should not be in the form of free water or that which is capable of being pushed along by its own weight, but water that is held in the soil by capillarity. Well

blue color with a wide border of white around the edge; the two colors make a beautiful contrast in connection with the clear green foliage.

I. setosa, or Brazilian Morning Glory, is a grand and quick growing climber, and all who have seen it are enthusiastic in its praise, as it will cover a trellis, or screen, quicker than any other vine I know of. The leaves are deeply lobed and extremely large, often measuring eight to twelve inches across. The stems are covered with a thick growth of reddish hairs, which gives it a unique appearance. Its crowning glory is the lovely blossoms, the flowers being three to four inches in diameter and of a beautiful soft, rose color. The vine branches freely from the axils of the leaves, and one vine can be made to cover a window completely if strings are placed for it to run on. The seed pods are very ornamental. The seeds, like many others of the *Ipomoea* family, are hard to germinate, and often need to be filed on one end before the germ can push its way through the flinty shell.

I. Goodellii is another fine variety. It can be raised from seed and the roots will remain in the ground over winter in the south, but farther north must be removed to the cellar. The vine branches freely and produces great numbers of blossoms all through the season. The flowers resemble a morning glory in shape and are a soft, pink color with darker throat. The vines produce so few seeds that many are propagated from cuttings, which grow as easily as a geranium.

I. sinuata, or Noon Day Glory, is another handsome vine, and, like the last mentioned, can be raised from seed and the roots kept over in a cellar or a pit. The vine is rather slender and grows to blooming size in two months from time of planting the seed. The flowers are in clusters, being white with wine-colored throat. The flowers are produced very freely, a bud growing at the axil of each leaf; they remain open all day. The seed pods or capsules are very beautiful, being oval, an inch and a half in diameter, and remain green until the seed begins to ripen, when they turn to a shiny black. When the pods burst open three shiny black seeds are seen.

Japanese Hop is a very hardy vine, one that can withstand extreme heat and drought and is little troubled by insects. It resembles the common hop somewhat, though it is much more dense and covers a trellis quickly. The new variegated sort, also from Japan, is a grand vine, its foliage being thickly mottled with white, indeed some of the leaves are almost entirely white. The leaves are large, six or seven inches across, and, when grown with the plain green vine, the plant makes a lovely screen for the porch or window.

Centrosema Virginiana is the vine which was sent out a few years since

as for *C. grandiflora*. It is a native of our southern states and is a beautiful vine, though it is only a low growing climber and will seldom cover a screen more than five feet high. Nevertheless it will be more generally planted when it becomes better known, as it is a perennial and can be kept for years with little trouble. Plants are raised from seed, and blossom in July and August, even the first year if seed is started early.

Cobaea scandens, though not a new vine, will always be a favorite, as it is one of the finest as well as one of the most rapid growing climbers known. The foliage is fine and delicate and the blossoms very large and well shaped, coming out green and afterward changing to a lovely purple color. The plants are raised from seed, though amateurs often fail to make them germinate. The rule is to plant the seeds in moist soil with the edge down and then give no more water until the plants appear. The old plants can be cut back in the fall and taken into the house, where they often grow and blossom through the winter.

H. M. W.

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PETUNIAS.

I ONCE knew an old bachelor who lived in a house by himself on a western prairie. A stray flower catalogue fell into his hands, and in it he found a colored picture of that brilliant carmine petunia, Countess of Ellesmere, so much used for bedding. It struck his fancy, and he sent for three papers of the seed. Next he made a big, round flower bed, at least ten feet in diameter, and sowed the entire bed to the petunia seed. The ground was mellow, the soil was rich, and the little seedlings soon grew into long-armed, thickly matted plants. When they bloomed the purplish hue of the flowers could be seen a mile away, and when face to face with the bed it was seen to be a solid circle of glowing, radiant, velvety bloom. As he complacently and slangily remarked: "His bed knocked the socks off from any other flowers on the prairie."

I give this as an example of what a striking effect can be obtained at little cost or trouble by the use of this good old annual, of which it may truthfully be said that it is one of the half dozen best plants in existence for garden decoration. The early feebleness of the petunia is really its only fault. The powder-like seeds germinate into tiny plantlets that look hopelessly frail and weak. Particularly is this the case with double petunias, and for that reason we advise sowing the latter in pots of fine soil in the house, covering lightly, if at all, and when they come up, giving them fresh air and not too strong sunshine at first. Out of doors, self-sown seeds of single varieties come up without the least trouble and grow off without a hitch or halt. The reason hand-sown petunias come up so poorly is that

they are usually either covered too deep or sown so late in the season that the sun scorches the wee plants before they have had time to send roots down to the cool, moist ground below. To obviate this get the bed intended for them ready in good time. Rake the surface until it is very fine and smooth, then sow the seeds thinly and pat the ground smooth with a board to press the soil around the seeds, rather than over them. I like, in addition, to throw light laths or brush over the bed until the little plants get under fair headway, for this slight protection keeps them from drying out under high winds or hot sunshine. Once out of their swaddling garments they need no coddling. From thence forth they remind one of a group of merry, romping tomboys, who climb fences, ride bare-back, and run races with each other in healthy disregard of trammeling clothes or etiquette. So these run rampant, measuring their length along the ground, shooting up to lofty perpendicular heights, making the most uncouth turns, interlocking arms with each other, or perhaps throwing their whole sprawling length quite beyond the limits of the bed. Dust and insects, drought or rain, have no terror for them. Soon the buds come, and then the flowers, dozens, scores of them, and that constantly, from early summer until after hard frosts. The gay, butterfly petunia blossoms are as light hearted as the parent plants. Their wide corollas, white as snow, blushing with carmine, or resplendent in richest purple and maroon, are more often than not coquettishly frilled and ruffled, bordered by bands of contrasting color, or splashed and mottled by the most vivid hues. There is not a prettier or more showy bedding plant than these, for the very good reason that there couldn't be. And where will they not grow, if the chance is given them? Over rock-work, scattered among shrubbery, and through mixed borders, or massed in beds by themselves, they are alike thrifty and handsome. Without exception, so far as my experience goes, the petunia is the least affected by seed bearing of any annual. With myriads of green and ripe seed pods all over the plants, the petunia bed is as gay with bloom in early October as it was in June or July. Give them plenty to eat—that means a rich and mellow bed—and they will grow, and if they grow, they are certain to bloom. Nor is this all. They like us so well, that they never wish to leave us. I can remember when a child that the weeds in my mother's garden were quite as apt to be petunias and poppies as rag-weed and purslane. Mother's petunias were very unlike the modern beauties. They were the original white and pale, washed out purple varieties first brought into cultivation. The petunias of to-day are much larger and brighter than were those, but

they have the same sociable trick of seeding themselves and coming up in the most unexpected places. We still have petunias every summer from seed sown ten years ago, and they seem as much at home on the premises as we do ourselves. There is a wide range of form in petunias—small flowered, large flowered, wide throated, and frilled sorts among the singles, besides the large, handsome double sorts that are deservedly popular as pot plants. All are worth growing. For bedding I really prefer the small flowered sorts, they are so wonderfully bright and profuse. Any of them make good pot plants. LORA S. LA MANCE.

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NO TIME FOR HOUSE PLANTS.

“YOU do not keep house plants?” I said to my neighbor one day, when she happened to come in while I was saying ‘good morning’ to my plants.

“No,” she said, “I have no time to bother with plants; they take so much time and attention, and besides, I have my hands full without taking care of plants. I never had any luck with house plants. They always looked as if they ought to be sent to a hospital to be treated, and I shall not fill my windows with anything of the kind any more.”

“Not even a hanging basket,” I suggested, “filled with graceful, dainty vines?”

“No, nothing of the kind.”

We who enjoy having plants in our homes feel sorry for those who care nothing for them. We are sure they do not appreciate what pleasure may be derived from the continual association with plants. Who does not give voice to exclamations of pleasure and delight in passing the florist's window which is gaily decorated with chrysanthemums, or beautiful roses, lilies, etc.? And this momentary glance tempts one to enter and buy at least a single pot, or a bouquet. How little satisfaction is found, however, in this purchase compared with the pleasure one takes in a generous profusion of plants growing in one's own home. How beautiful are the begonias, with their rich, royal foliage, and how splendid when bending under their wealth of bloom. How luxuriant, almost tropical, are the fine French cannas—almost as pretty as palms—and such rapid growers, such prodigious bloomers. They deserve a generous place in the roomy south window. There are vines without number which grow with little care and make such lovely baskets. The various Tradescantias mingled with begonias, or bright-leaved geraniums are always admired, and so easily cared for that one really deprives himself of a great pleasure who fails to provide several hanging baskets to cheer the sombre days of winter.

I look at this or that plant in my window and think to myself how much

prettier it is than the bit of a doily, with its fine drawn work, which my neighbor has spent her time making. Doilies are pretty, but if time is precious, and one must either do without doilies or plants, I would much prefer to dispense with the doilies.

How much better it is, too, to talk about about plants than to discuss one's neighbor's short-comings. It is astonishing how much time is given to this manner of pastime—this sort of evil speech—which might be harmlessly spent, even if no profit were derived, from a discussion of plants. Kindred interests tends to unite people. If a general interest in plants is aroused in a community or neighborhood there will be a correspondingly good feeling of fellowship among the people. Petty gossip will be crowded out, in proportion to the important matter that is taken up. Now that the choicest plants may be obtained at such low rates it seems almost unaccountable that any one should be entirely without them, and yet some homes are never brightened, summer or winter, with a vine, a shrub, or plant of any kind.

MRS. W. A. K.

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THE CHRYSANTHEMUM SHOW AT NEW ORLEANS.

AT the second annual chrysanthemum show of New Orleans, held last autumn, twelve superb collections of professional gardeners and florists were exhibited, besides displays by amateurs. Beautiful indeed, novel, rare, and striking the chrysanthemum must be to establish special claims of beauty, apart from the other flowers in abundant, summer-like bloom in New Orleans at that season. Palms, ferns, roses, many annuals such as as cosmos, salvia, and dahlias, were gorgeous in all parts of the city, in undiminished bloom and beauty.

Yet, under the disadvantages of such striking comparisons, the chrysanthemums were very fine. For some reason the red, in its varying shades, was in the minority, and the gardeners say that the long summers here seem more deleterious to that color than to any other. Pink is not a favorite shade here, either. White leads, and yellow follows. Of all the faultlessly beautiful flowers “mine eye hath seen” the pure white chrysanthemums are they. Like a snow wreath of purity they adorned the large pavilion in Lafayette Square, over and above all other colors. Niveus came first as a prize winner; The Queen, Mrs. J. Geo. Hill, *Enfant des Deux Mondes*, Miss Gladys Spaulding, W. G. Newitt, Mrs. E. Rey creamy white, and Dean Hole, which is suffused with pink on first expansion, was pearly white at the Show; also Inter-Ocean had lost its tinge of pink, and had merged into snowy white; Mayflower was grand, and W. G. and E. G. Newitt, exhibited as synonyms, were peculiarly

striking with long, drooping, pure white petals and green centers; the centers were not hard and staring, but exceedingly delicate in effect. Niveus, The Queen, and Achilles, were the most perfect among prize winners. Words cannot convey the idea of their exquisite beauty. The petals were almost as fresh as the hyacinth in spring, and the foliage fresh, green and healthy.

Next to the white sorts, which were simply perfect, the yellow ranked in beauty. Over and above all, Philadelphia graced every collection; little wonder it is listed as the winner of fourteen prizes. The soft, full, pure white, broad incurved petals, softly blended into primrose, large, on strong stems, with healthy foliage, formed a flower never to be forgotten; and one not to be classed with other flowers of its color. Philadelphia among chrysanthemums, like the *Marechal Niel* among roses, is peerless. Pitcher and Manda, with bright gold-colored center, ranked with the yellows, despite the edge of white. The whole flower is as flat as a plate. Margent Jeffords, a bright canary, and Mrs. W. H. Rand, a brilliant yellow, Golden Wedding, Eugene Dailedouze, and among smaller sized yellows W. A. Manda and Major Bonnafon won the prizes in bouquet form.

Helen Bloodgood was superb in clear, unclouded pink. This grand chrysanthemum is a veritable *Mermet* for purity of color—not a tinge of purple or dull red marks the shade of pink.

Mrs. S. T. Murdock, pearly pink, and Burt Eddy, an immense flower, light pink on the upper side, purplish on the reverse, are quite striking. Mrs. Higinbotham, in brilliant pink or rose color, was most elegant.

Mrs. M. R. Parker Jr. is very popular here, and is regarded as one of the very finest of all pink chrysanthemums, but bloomed, as its habit is, too early for the Show. *Cullingfordii* was at its best, and if old is good.

G. W. Childs, Mrs. J. H. White and Mrs. Geo. West were the red sorts that merited notice. Mrs. Geo. West is a flower of monstrous size, but the color is not much admired. It is regarded as a dull, muddy red, not as pleasing as *Cullingfordii* or G. W. Childs. The cultivator that exhibited the largest bloom of Mrs. West had but the one, and it was truly enormous—on a straight, stiff stem, and it suggested the lone parrot a taxidermist had finished up, without feet, and secured to a short columnar support, for exhibition. Far more beautiful were Niveus, The Queen, Achilles, Philadelphia, Maud Dean and Pres. Wm. R. Smith, which branched in abundance and was crowned with many fresh, full, fluffy blooms. These free bloomers were nature at her best.

There were 2,000 chrysanthemums on exhibition, and the display was grand, although the enterprise is yet in its beginning and has not as yet acquired the proportion of that of sister cities. Cooperation with chrysanthemum growers of other cities will doubtless be a great advantage to the New Orleans Chrysanthemum Show in the future. G. T. D.

Letter Box.

In this department we shall be pleased to answer any questions relating to Flowers, Vegetables and Plants, or to publish the experiences of our readers. JAMES VICK

Little Gem Calla.

I have been reading in your January MAGAZINE page 38, about the trouble J. C. has with the Little Gem Calla. Three years ago I bought one of you, and it has never failed to flower every winter since. Last fall when I potted it I divided it and made two, and they are doing finely; both are in blossom and every one who sees them says they are little beauties.
Rutland, Vt. S. A. B.

Malope, Malva?

In VICK'S MAGAZINE for June, '95, Mrs. S. C. F., of Gandy, Neb., describes a malvaceous plant a foot and a half high with pink flowers lined with darker pink leaves like the hollyhock's, only smooth and glossy, etc. Your answer was that you could not name it from the description. If the plant is branching and bushy it is no doubt a malope, or what the catalogues call such; if it has an erect, nearly unbranched stem it may be a malva, probably *M. mauritania*. If the latter I would like to get the seed. I used to grow it, but have lost it.
Canaseraga, N. Y. E. S. GILBERT.

A Chrysanthemum.

A Judge Hoitt chrysanthemum was cut down last year after flowering and was put in the cellar for the winter. Last spring a dozen shoots started, and when they were a foot high I bent eight of them down carefully, putting an inch or two of fresh soil over their stems and leaving their tips sticking out an inch or more. Roots, of course, came out of the buried wood, and before long the little tips were taller than those left standing. In early autumn, though the box it was in was quite large, I concluded to shift it to a larger one, and by the time it was budded it was an immense plant four feet or so high, and spreading in all directions. But an early frost injured it so that it failed to bloom, and I cut it down and consigned it to the cellar again. Had I left it in the first box it would no doubt have flowered earlier. Kept growing in the house till it got ready to bloom, it would have been a sight.
E. S. G.

Roses, Their Soil and Pruning.—Seed Beans.

What kind of soil do roses require? When is the best time to trim rose bushes? Is it best to cut away the growth of last summer?

How is the best way to keep bugs out of seed beans?
Crystal Run, N. Y. E. S.

Roses like a rich soil, and they should have some good manure dug in around them every spring or fall.

The hybrid perpetual roses should have the growth of the previous year cut back one-half or more, according to the strength of the plant and the shoots. The weaker growing plants need the most shortening, the stronger ones less, but some of the strong shoots should be removed entirely. The monthly roses also require to be cut in more or less, depending on their strength and vigor of growth.

The best time for pruning roses is just before growth starts in the spring.

The bugs cannot be kept out of the beans. The bean insect lays its eggs in the beans while they are green and in the pod, and there they hatch out into grubs or larvæ. These have not yet grown much, nor is the bean yet badly damaged, when harvested. At that time, however, the grubs should be destroyed. This can be done by enclosing the beans in a tight receptacle and introducing therein some bisulphide of carbon. This substance soon volatilizes and the gas penetrates

the beans and destroys the maggots or bugs and does not injure the beans. This is the method practiced by seedsmen. It is said that if the beans at the time of gathering are placed for an hour in a temperature of 145° it will kill the larvæ, and not injure the seeds.

Fertilizer.—Carnation.—Calla.—Smilax.

My questions will doubtless sound very strange to you, but my knowledge of floriculture is quite limited. I long for the time when I will be free from my school duties and can devote more time to raising flowers. My luck has not been very good, but I intend to try harder this next summer and will not have so many varieties. I take VICKS MAGAZINE, which has helped me more than once, and I have found that some of the advice works well, especially an article written upon the treatment of geraniums. Mine are doing nicely after undergoing some of the treatment given there.

1—What do you advise as the best fertilizer for the window and out-door culture of various plants?

2—When a carnation plant sends out little branches or a kind of shoot, what will be done with these? Shall they be planted or will they not grow?

3—Why, when a new leaf makes its appearance on a calla plant, does the oldest leaf die and drop off? Is the plant in a healthy condition or not?

4—What is the treatment for a smilax? I bought one a short time ago, but it appears to be dead at present.
West Chester, Pa. E. V. A.

1—Any of the best brands of commercial fertilizers on the markets—the so-called phosphates—what are known as complete fertilizers, or those containing a high percentage each of nitrogen, phosphoric acid and potash are the best, and, though the highest priced, are cheapest to use.

2—The little shoots or branches can be allowed to remain, or they can be used for cuttings, to root and make young plants.

3—A calla losing its leaves, in the manner stated, is not in a healthy condition. A healthy, vigorous plant will retain all the foliage it makes. Examine carefully about the tuber and see if any worms are working in it.

4—Smilax needs only to be potted in light, rich soil and watered, and kept in a temperature of 60° to 65°, and near the light.

An Experience With Sweet Peas.

The following letter received by James Vick's Sons, shows what success may be attained in sweet pea raising. It should be an encouragement to all who wish to raise these lovely flowers:

We have for many years bought our sweet pea seed of you and have always had good success with them, but last summer they seemed to do better than ever before. We have a wire netting for them to run on, which goes across our yard, sixty feet long, and last summer it was completely covered with blossoms. I bought an ounce of each of the following: Emily Henderson, Butterfly, Countess of Radnor, Mrs. Gladstone, Invincible Carmine, Duchess of Edinburgh, and Boreatton. We planted them so that the colors shaded, beginning at one end of the hedge with the white Emily Henderson and shading down at the other end to the dark, handsome Boreatton. You have no idea how beautiful was the effect. We could pick a basketful of each separate variety every day. I wanted every one to see them, so one morning we picked as many as we could pack into a large half bushel basket and exhibited them in one of the store windows. In this show window were placed all the glass bowls that the store afforded, and each was filled with a separate variety of sweet pea.

The delicate pink of the Mrs. Gladstone, the beautiful lavender of the Countess of Radnor, with the pale Butterfly, and the pure white of Emily Henderson contrasted with the vivid Cardinal and the dark maroon Boreatton, made indeed a variety that has never been produced in any other flower. The *Morning Herald* gave the following notice about the show in the window:

"The most beautiful and artistically arranged floral exhibit ever shown in the city can be seen at Price & Landas' jewelry store. It is 'A Study in Sweet Peas,' and the handsome variegated blossoms were cultivated and arranged by Miss Bates, of North Perry street. The effect produced is charming and evokes most favorable comment."

Our experience was very similar to Mrs. Webb's, whose hedge is pictured in the *Floral Guide* for '96, for before many weeks went by we had to put an extra story on our trellis. Some may think that the picture in your catalogue is exaggerated, but our hedge was just as high as hers, and much longer. I think that the reason that many have poor luck with their sweet peas is they do not give them a high enough trellis to grow on. They will grow up above the trellis and then fall over, struggling all the time to lift their pretty heads up to the light to blossom. Then the stems become twisted and short, and, finally discouraged, they will dry up and stop blooming entirely.
HARRIET E. BATES.

Titusville, Pa.

Otaheite Orange.—Rex Begonia.

Will you please inform me what kind of soil Dwarf Otaheite Orange trees need to make them grow and bloom? I have one and there are only a few leaves on it, and there are two or three buds started, but they do not grow any now, also, do they need much water? And the Rex Begonia does not do well at all.
J. V. V. B.

Mechanicsville, N. Y.

Soil taken just under the sod of an old pasture where the land has some clay in it is called loam. Of this use, say, three parts and one part of leafmold from the woods and one part of sand, and one part of old, well-rotted manure, and mix all well together. The parts to be measured by their bulk. This mixture will make a good soil for the orange as well as many other plants. If a lighter soil, for some plants, should be wanted use two parts of leafmold instead of one. Again, some plants might not need the manure and then that can be omitted. Thus, having the materials on hand, as every plant grower should, one can adapt the soil to the various kinds of plants. Plants with small, fine roots need light soil, while those making strong roots require a heavier mixture.

At this season of the year the orange may be kept in a somewhat low temperature—55° is enough. Also, the atmosphere should be moist. And one should be satisfied to have the plant keep green without growing. It should be watered very sparingly through the cool, dull weather. In March, with more sunshine and a rising temperature, the plant can be given a warmer place, and as it shows signs of starting supply a little more water, which is to be increased with increasing growth.

The Rex Begonia is probably suffering from too dry an atmosphere. Provide moisture for the air by placing a dish of water near or on the heating apparatus. It is a good plan to have the pot stand in a basin of sand which is moist. About every other day spray the leaves, upper and under side, with a fine spray. A drop or two of water falling on a dry leaf will injure it, but spraying all over is useful.

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Horticultural Meeting.

A very interesting and profitable meeting of the Western New York Horticultural Society was held in this city on the twenty-second and twenty-third days of January. The attendance was unusually large and quite filled the Music Hall, including gallery, of the Y. M. C. A. The address of the president, William C. Barry, reviewed the horticultural conditions of the past year and presented many excellent suggestions connected therewith. A number of very valuable papers were read, and the discussions of questions were of great interest. The officers of the society were reelected: William C. Barry, Rochester, president; S. D. Willard, Geneva, vice-president, and John Hall, Rochester, secretary and treasurer. A full report of the meeting, including the papers read, and the discussions, will be published in a few weeks in the annual report of "Proceedings." A remittance of \$1.00 as a fee of membership will also secure a copy of the proceedings.

* *

A New Hybrid Tea Rose.

A new variety of hybrid tea rose is placed upon the market the present season by Louis Vieweg, of Quedlinburg, Prussia. It is a cross of the well-known Niphetos with the Hybrid Perpetual Madame Pierson, and is called Preciosa. Its color is a "deep, glowing velvet carmine." The originator says: "The plant has a compact habit and produces freely an incredible number of good-shaped double flowers, deliciously fragrant. The half expanded flowers are simply perfect and exquisite for cutting. * * * Pre-

ciosa blooms abundantly from May until frost sets in, and keeps its form and fresh color even during the hottest, sunny weather. Preciosa is in spring the first to bloom and in autumn the last. It is well adapted to early forcing."

After a year or two of trial in this country we shall know if this variety sustains the claims here made for it.

* *

Carrots Among Celery.

In the excellent article which appears in this number, entitled "Practical Celery Growing," mention is made of raising a crop of carrots between the rows of celery, with the remark that "digging the carrots broke the celery roots so as to greatly injure its growth." This trouble could not occur with the Early Short Horn or the Half Long Stump-rooted. It was caused by employing a long rooted variety.

* *

Plants Not Injurious in Bedrooms.

This subject has been examined in this country several times within a few years past, and always with the conclusion that the old idea of plants in sleeping rooms being injurious was quite unfounded. A confirmation of this position is given by a test made in a London conservatory and published in the *British and Colonial Druggist*, and shows that the amount of oxygen is increased during the daytime and falls to the normal standard at night. The plants are, therefore, a positive gain to the atmosphere. The following is the account:

"The well-known property of plants of giving off carbon dioxide has led to the presence of plants in sleeping apartments being popularly deemed undesirable. The experiments of a chemist in a London conservatory tend to prove such a supposition fallacious. In a conservatory containing 6,000 plants in the middle of the day oxygen had so far increased on the carbon dioxide that out of 10,000 parts only 1.40 proved to be carbon dioxide, whereas the normal proportions of the purest air is about four parts in 10,000. After being shut up twelve hours the air in the greenhouse at noon thus proved to be surcharged with oxygen. The same air was analyzed just before sunrise, and the carbon dioxide had so far gained on the oxygen that the proportion of it was almost exactly four per 10,000. Taking the twenty-four hours round, therefore, the day just about balances the night."

* *

The Rathbun Blackberry.

The history and statements in regard to the Rathbun Blackberry, which have been published in these pages, have awakened a general interest in regard to it and brought out many inquiries. As a blackberry of the highest quality it is unquestionably at the head of the list. It surpasses all other varieties in this respect, and this alone is a proud preëminence. It is seldom that a fruit of high quality has also the characteristics to make it prominent as a market variety, and, as a rule, the best market varieties of most fruits hold this position by their handsome appearance, though in excellence they may rank as only of second or

third quality. Large size and handsome appearance usually control the market. But the Rathbun blackberry combines fine appearance with high quality. It is one of the largest, if not the largest, of all blackberries, is of an intense black color, highly polished, and the color is permanent. Many kinds of blackberries lose their color and take on a reddish tint soon after picking; this is a defect which greatly injures their market value. With the Rathbun, as stated, the color with its high polish is maintained to the last. No fruit can make a finer appearance when exposed for sale. The bush is very compact, very branching, and suckers but little. Compared with most other kinds it is much less thorny. It is very productive and cannot fail to be popular and profitable as a market berry, and for family use it has no equal.

* *

The Book of the Fair.

This great work, the only history of the Columbian Exposition, has been brought to a close by the issue of the twenty-fifth part, together with an index for the whole. In all the parts constitute a large quarto of 1000 pages, elaborately illustrated with thousands of photo-gravures and 100 full page engravings. The history of each department is very complete. The whole work has been one of great expense and labor, and is invaluable as a record of the great exposition. The Bancroft Company are entitled to great credit for the very able conception and execution of this monumental work.

Rich Red

Blood is absolutely essential to health. It is secured easily and naturally by taking Hood's Sarsaparilla, but is impossible to get it from so-called "nerve tonics," and opiate compounds, absurdly advertised as "blood purifiers." They have temporary, sleeping effect, but do not CURE. To have pure

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PRACTICAL CELERY GROWING.

THE use of celery has largely increased in New England within the past quarter of a century, but so also has its production, and if it were not for the improvement made in the methods of growing it, which lessens the cost of the labor in producing, and yet makes it a crop more certain in its yield, there would be but little money in it for the gardener, unless prices were kept far above the present ruling rates. Probably the cheapness of prices has had much to do with increasing the demand for it.

Yet there is quite a little knowledge of the business and a great deal of care required to grow a good crop of celery and grow it profitably. The soil should be a sandy muck land, deep, rich and strong, sufficiently well drained to be worked quite early in the spring and late in the fall, yet not subject to drought, or so situated that it can be watered if a very dry season comes in July or August. This should have been cultivated in some crop for one or two years, and should have been heavily manured and well cultivated during that time. Plow it deeply late in the fall, leaving the furrows well ridged up, that it may dry out early in the spring.

As soon as it can be worked easily after the frost is out, spread on from ten to fifteen cords of well-rotted manure to the acre, and plow it quite shallow, or work it well with a cultivator, the object being to mix the manure well into the surface soil, and at the same time to make all fine and mellow. Follow this with a fine-toothed harrow or brush, and if not ready to sow the seed or put in the plants, repeat this harrowing just before planting, as the seed bed cannot be made too light and fine for the seed. Upon this sow from a half ton to a ton per acre of some good fertilizer and rake it in well with hand rakes, raking off all stones and rubbish at the same time.

The fertilizer should be very strong in potash, as that is essential in growing this crop, and such soil as I have described is apt to be deficient, or at least not over supplied with that element. A good fertilizer of home manufacture would be made of 700 pounds of dried blood, or 800 pounds of dried fish scrap, 800 pounds of dissolved bone or phosphate rock, and 400 pounds of muriate of potash. (This would also be a good fertilizer for potatoes and many other crops). It would be very nearly like taking 1800 pounds of the best commercial fertilizers and adding 200 pounds of the muriate of potash to it.

In preparing the seed bed it is not necessary to be quite as particular, if the plants are to be set, as it would be if the seed were to be sown. The working up of a fine, mellow seed bed is not only important in giving the little roots a chance to penetrate the soil easily and freely in their search for food, but it enables the seed to be put in at a uniform depth, which should be not more than an inch below the surface, and a half inch is better if the ground is not too dry. This allows the little plants to come up almost as quickly as do the weeds among them,

and, as they are very small and delicate when they first appear, if they do not get an early start they may be hidden so as to make difficult work of the weeding of them.

The varieties grown around Boston are principally the Paris Golden for an early sort, easily bleached; the Giant Paschal, medium early or fall and early winter, and the Boston Market for a later and better keeper. The White Plume is not liked, because the stalks are apt to be "pithy," or soft, hollow and tough.

By sowing seed under glass in February or March, and when large enough pricking it out to two or three inches apart, plants can be grown to be a foot high by the time the ground is ready, and such plants of the Paris Golden can be blanched for market in July and August, by placing boards about a foot wide on each side of the row, fitting them up as closely as possible to the plants, and confining them at the tops to give an upright growth. Later and smaller plants will be ready in September, while those from the seed sown in the open field will be fit to blanch in October. As it takes but about two weeks to blanch it in hot weather the same boards can be used several times.

The ease with which this can be done has rather led to an overdoing of the business lately, and celery in August has not brought much better prices than in the fall months. Also, if it is too warm weather during the blanching the stalks are apt to be tough and stringy, unless carefully trimmed, and this lessens the demand for it. More care on the part of growers may result in a better article and better sales. Quick growing is very essential if one would have an early celery, firm, solid and crisp, as buyers like it.

The Paris Golden is usually set in rows of two to three feet apart, but upon land made as rich as we have described this can be reduced to eighteen inches apart, allowing just room enough to get among it, and place the blanching boards where it is grown. We have seen a good crop grown from seed sown in rows twelve to fourteen inches apart, and thinned out to four inches apart in the row, but we prefer more room that the plants may grow larger, resisting the cold better if it comes as early as it did this year, and also giving a better root after it is blanched. Such fine roots may do very well where it is the custom to tie it together in bunches, but in nailing together, as Boston dealers like it, they are too small.

At eighteen inches or two feet apart and six inches apart in the row, the plants are of good size, and this admits of growing a crop of lettuce or spinach between the rows, or even two crops in succession, before the plants from the seed sown in the open ground will shade the ground too much. To get two crops of lettuce, the first should be set when the celery seed is sown. One crop may be grown between plants that are set out from the hot bed. We have seen a crop of carrots grown between celery rows, but digging the carrots broke the celery roots so as to greatly injure its growth.

Celery roots, though very small, run

near the surface, and completely fill the ground when the plants are a foot high, and thus we insist upon shallow cultivation, even to the extent of preferring the more laborious method of keeping the weeds down with scuffle hoes, hand hoes and weeders, to allowing the horse hoe or cultivator in the field after the plants have attained that height. But weeds must be fought vigorously all the season.

The Giant Paschal, as its name indicates, is a tall, upright grower, and does not blanch so well between boards, though this can be done if the plants are set early, so that plants attain their growth by the first of October. It should be boarded by the middle of September, and requires at least four or five weeks to blanch out, or it may be partially blanched there and finished in the celery house or pit to be ready for market in November. When grown quickly and blanched quickly it sells better than the Paris Golden, as the upper leaves retain more of the green color, making it more decorative, and the stalks are larger and longer, but it lacks something of the rich, nutty flavor that epicures delight to find in the Boston Market celery, though much of it is sold under the latter name to those who are not experts.

The plants to be bleached between boards may be set in rows two feet apart, and six or eight inches apart in the row, but where it is to be blanched by banking with earth, the rows should be from five to six feet apart, it depending upon the character of the soil, some allowing a high bank to be made with a very narrow base, and a dryer soil requiring a broad base. From three to five rows of onions are usually grown between rows of these two kinds, or we have grown one or two rows of the Paris Golden between them, to be removed before the banking commenced.

We usually draw a little earth up to the later kinds at each hoeing, but the banking properly does not commence until about the first of October, when the plants are well grown and the onion or other crop is out of the way. To do this easily and properly requires three men to a row, one to hold the plant firmly together by the tops so that the stalks are upright and compact while the other two shovel the earth around it. Having placed earth enough to hold it firmly in position, pass on to finish the row. As soon as this is done go over again, first pressing the earth firmly around each plant, but taking care that none gets in among the centre stalks, then banking to top, just allowing the upper leaves to project a little above the earth. In ten to fifteen days the earth will have settled and the plants have grown up through it, so that the banking process must be repeated, and by some it is done even the third time. It is usual to plow a few furrows between the rows at each banking, to make easy shoveling, but not going within a foot and a half or two feet of the row, as that is needed to build the bank upon, and plowing too close or too early breaks the roots and checks the growth, which makes the celery tough and stringy, and causes slow blanching.

It is usual to begin about the middle of October to remove the early celery to the celery house or to trenches, but this year that was not early enough, as much of it had been injured by freezing before that time, particularly the smaller roots, the larger ones resisting the cold better, only the outside stalks freezing, which would not have blanched well any way. It used to be said that celery would bear to be out until the thermometer indicates 22°, or 10° below freezing, but we know that the early kinds will not stand that without being greatly injured, and that hurts the tops even of Boston Market when it is exposed. Hereafter we shall try to have all Paris Golden celery either boarded up or removed to the celery house early in October, and follow this up with Paschal later in the month and Boston Market in November.

A celery house should have side walls about four feet high, one-half being below the surface of the ground, and the earth taken from the inside to be used in making a bank about three feet thick or more at the bottom, outside the wall, to keep out the frost. The centre or ridge pole should not be less than six feet high, to give fair standing room in there. For width it should be such that each side of the roof can be covered with one length of board, which may be obtained of even lengths, twelve, fourteen or sixteen feet. Some build only one-half this width, making a shed roof. The length may be as long as the crop demands. There should be a supporting rafter and posts under the center of the boards, as they may have to resist the weight of a load of snow, besides the hay with which they are to be covered. The boards should be square edged and fitted closely together to keep out rain.

Some build higher side walls, that the cart may be backed up to unload the celery; others lower, as fancy or economy dictates; but where the roofing boards have been used for blanching the early celery, we like the above size. The roof is put on each day as fast as the celery is packed in, beginning at the end of the pit. Entrance may be made by a door at the end where the last is put in, an alley way being left at one side of the centre posts to allow passing through to the farther end.

Some have no celery house, but put it in pits entirely underground, covering with boards as it is packed in, and adding hay upon that as the weather grows colder. This may be done at less cost, but it is of doubtful economy, as these pits or trenches must be well drained to keep water from standing in them. They can be but imperfectly ventilated, and they are not convenient about getting the celery out as wanted for market in the winter. We class this much as we do the plan of banking celery only by plowing the earth up against it, without shaping it at all, as a very shiftless way of saving labor at the expense of the crop, or of more labor later on.

In harvesting the crop plow down one side of the bank, being careful not to hit the plants with the plow; with a sharp

spade cut the roots about two inches below the surface and lift the plant carefully, so as not to break the stalks, shake or beat the dirt off the roots, and then break off all dead, rotten or broken stalks around the outside of the plant, as they quickly decay, and the decay spreads to all they touch. I do not like trimming off all the stalks that are not likely to blanch, although it saves room in the house, but it causes the centres to pack too closely and hastens the blanching too much, causing some to become soft and pithy that would be firm.

Stand the plants upright in rows across the end of the house, and support them by putting boards across as often as once in ten feet. Once in six feet would be better. There is no advantage in packing the roots around with earth that we could ever discover. Plants that have no roots, being accidentally cut too high, seem to be as well preserved as those having plenty of roots on the ground.

We have advised putting on the roof-boards as fast as the celery is put in, and they should be so laid as to shed water if it rains, and the ends should be protected at night from cold winds and rains, and shaded from the sun as much as possible; but there should be a draught of air through the house from end to end above the celery, and this should be kept up, opening the ends at all times after the house is filled, when it is not cold enough to freeze the tops of the celery.

Too much heat in the house causes too rapid blanching and rots the stalks, as also will water standing among it, though in a very warm spell after it is packed away the house may be cooled by lightly showering the tops with cool water through a rose sprinkler, taking care not to wet so that water will run down to the roots.

The secret of long keeping celery, to obtain high prices late in the season, is in keeping it as nearly at the freezing point, without actually freezing it, as possible. Some of the Boston Market celery, if well banked to the very tops, may be left in the banks until the ground has frozen two or three inches deep, if it is desired, and allowed to blanch there, the advantage being in saving some labor in housing it and in having it come out well blanched, fresh and crisp. The disadvantage is the possibility of being caught in a sudden cold spell when it freezes to the stalks, and, as it should not be handled while frozen, occasionally some gets frozen in and is not harvested at all, or only in a much damaged condition.

The roof of the celery house should be covered with hay or straw, and this must be increased in thickness as the weather grows colder. The sides and ends must be banked up well, and even the ventilating holes at the ends closed when the thermometer gets down near the zero mark. Double boarding the roof, so as to insure shedding water and as a better protection against changes in the weather, is a great advantage. In taking out the celery begin when the stalks are well blanched, and work it off as rapidly as the market will take it.

While the Boston Market celery will retain its crispness and keep quite well for some time after it is blanched, the earlier sorts do not, but decay begins soon after blanching is done.

The work of trimming and bunching celery for market must be learned by practice, as it can be taught only with roots in hand. Judging by what is brought to market, many growers need to study some time before they will learn this. Neat bunches of uniform size, with roots well pared off, green or pithy stalks all pulled off, and the whole washed clean and packed in clean boxes, have an attractive look, and bring better rates than those packed carelessly and put up slovenly.—*A Market Gardener, in American Cultivator.*

* * *

OTAHEITE ORANGE.

I PROCURED a plant and did everything to it that people said should be done, and the result was a failure. Then I bought another, a nice, thrifty looking plant, and I concluded to try just ordinary treatment with it. I sprinkled some luke warm water over its leaves, and put the roots, without removing the moss in which they were wrapped, into tepid water over night. Into a six-inch pot I put some bits of crocks and some rich, sandy loam, and set the plant a little deeper in the pot than it had been, pressed the soil firmly around the roots watered and kept it in a cool, rather dark, situation for a few days. I then put it in a south window where large plants shaded it, and as soon as growth commenced it was given the full benefit of the sun, and how splendidly that little plant did bloom, every eye sending out a cluster of flowers; it set eighteen oranges. All of them were removed but one, which is at present as large as a hickory nut. It proves a real curiosity to the children, and to raise orange blossoms at home is a luxury not to be despised. A friend remarked, on being told my orange was less than a year old, that she had an orange three years old that did not show any signs of blooming. Her orange is a seedling, and requires the same attention an Otaheite orange would. N. B. H.

* * *

A WELL BRANCHED ACHANIA.

I read in one of your MAGAZINES a complaint of someone's achania not flowering and has only one branch. I wish that writer could have seen mine at Christmas time. It was so thick with branches, big and little, I had not patience to count them, and each one was tipped with from one to three full blown flowers and innumerable buds. The children called it a Christmas tree with scarlet tapers and pinkish wicks. It was really beautiful.

MRS. S. H. S.

Perhaps Mrs. S. will inform us if she practiced pinching in the terminal bud from time to time while the plant was growing. If left to itself the plant appears to have the habit of making a single straight stem without branches, at least in its early growth, and later the foliage is confined to the top.

WORTH KNOWING.

THAT Iris Kæmpferi loves a moist, even boggy, place, and will thrive wonderfully well under such conditions.

That the ordinary moth ball, bought at the druggists, put in the drain where ground moles lurk will rid a whole section of these pests.

That corn cobs, one end well saturated with coal oil and the other end inserted in the hill where melon, cucumber or pumpkin vines are growing will drive away the striped beetle or bug, so destructive to them.

That if a branch of the ordinary pine is put deep in the heart of a currant or gooseberry bush the currant worm will not trouble the bush, or, if already there, will leave.

That out-of-door exercise among the plants, shrubs and vegetables has made more women strong than doctor's tonics. And that over this dispensary should be written "abiding satisfaction."

That a corner where the leaves drift and where the shadows lie most of the day and the ground is of an even moisture, never dry—just such a place, in fact, where wild flowers thrive best, is the very place to root cuttings of any kind. Try it!

That a row of currant bushes pruned sharply every year as to the weak growth and most of the old wood, and the new pinched in, with a yearly tonic of well-rotted cow manure, or waste tobacco leaves, applied to the roots, will insure more and bigger currants, and which will command a ready sale, besides being the pride and beauty of the whole garden.

That coal ashes sifted on a clay soil act as sand would, and that the crops raised on soil thus treated are larger, finer, and of better flavor. That all fruit trees are greatly benefited by an application of the same about their roots, especially if the soil be of clay. H. K.

SELECTING VARIETIES OF STRAWBERRIES.

Judging from the reports made to the horticultural societies and the reports of experiment stations, the varieties of strawberries that prove satisfactory constitute a long list, and what one discards another finds well adapted to his purpose. Much of this diversity of opinion is caused by the difference in soils and locations. In regard to this matter it will not do to pin faith on anyone's sleeve, and the only reliable way is to make trials, each for himself or a neighborhood.

MONEY EASY MADE BY HUSTLERS.

Dear Editor:—My experience may interest others who need money. Fifteen years clerking, farming, hustling, trying to sell books, wringers and every contrivance made me discouraged and mad when I met my cousin in Iowa making \$45 a week, plating tableware and jewelry. I got a complete outfit from Gray & Co., Columbus, O. They send materials, instructions, receipts, trade secrets, and teach the agent, and have treated me elegant. I plate gold, silver, nickel and white metal, get all the knives, forks and other goods I can plate; make from \$45 to \$75 per week plating and sell some platers besides. Anyone can get a good plating outfit by writing them. J. RYAN.

THE CRANDALL CURRANT.

IF this is anything more than the old Missouri Currant enlarged in its flowers and fruit, I have been unable to discover it. The leaf is identical, even to the microscopic hairs along the margin, and the bush as seen in winter seems the same, while the currants, though much larger, have the same tint, leathery skin and peculiar flavor. Even the Missouri's habit of bearing only a berry here and there has been followed by the Crandall with me so far; the Missouri is native to riversides and marshes—it might bear more freely if planted in wet places. It is of no great consequence, to be sure, whether wet ground improved the bearing qualities of Missouri and Crandall or not, in view of the poor flavor of both. The ironclad hardness of the Missouri is possessed by the Crandall; both (in full bloom at the time) bore the freeze of May 12th last year, with perfect indifference. The Crandall, however dubious as a fruit, is a success as an ornamental shrub; its flowers are twice the size of its parent's and it merits cultivation for this reason if for no other. E. S. GILBERT.

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VICKS MAGAZINE, Rochester, N. Y.

RAISING SWEET PEAS.

THERE is no mystery about raising sweet peas and having all the beautiful, fragrant flowers that one can desire all through the summer. The sweet pea has some peculiarities which demand certain conditions and both the peculiarities, and the conditions they impose, should be understood in order to give the plant intelligent and successful culture.

It is a plant of rapid growth and of a weak stem, and provides itself, as it grows, with tendrils by which it fastens itself to anything near it for support. It makes numerous branches and these all have tendrils ready to help support it. It is evident that the means of support should be prepared in time and be in place when the plant appears above ground. The plant is comparatively hardy and starts while the weather is yet cool. The seeds if placed in the ground in autumn will swell and be ready to push up very early in the spring, even while the temperature is yet low, and slight frost will not damage the plants. They grow best during the early spring and send their roots down deep into the cooler soil. If planted late, when both soil and air are warm, they make less vigorous plants and bloom less profusely. Early planting is, therefore, an essential point, and as soon as the soil can be worked in the spring preparations should be made for sowing the seeds. Here at the north it may sometimes be done in March, but more usually from the tenth to the last of April. In light or sandy soils they can be planted earlier than in those that are heavy. Though, as stated, the roots of the plant like a cool soil, and the plant grows best before the weather gets warm, yet it is a plant that delights in sunshine, and must never be planted in the shade. The soil should be in good condition, but it is better that it should have been left so after removing the previous crop than to fertilize directly for the sweet peas. If the soil is poor and stable manure is applied it should be that which is well rotted; and by no means is it advisable to dig in fresh stable manure to ferment about the roots of the plants. If old manure is not at hand it will be far better to use a good commercial fertilizer. This can be scattered on the surface and worked in when digging. Although early planting is advised the ground must not be worked when it is wet and sticky, otherwise it will be apt to bake when dry. Having turned the soil and crumbled it with the spade, rake the surface smooth and then stretch a line, as long as the rows are intended to be, and by the side of which open a trench four or five inches deep. Sow the seeds along in this trench about two or three inches apart and then cover them two inches deep with soil. After the plants come up hoe in a little more soil, and as they continue to grow

work in some more, and thus continue until the trench is full. By planting deep the roots are secured in a cool place for the summer, and experience has shown this to be a good practice.

If more than one row is to be planted then two rows can be placed ten or twelve inches apart, and it is better always to run the rows north and south if it can be so arranged, but this is not absolutely necessary. Planted in that way the sun can have better access to them, which is desirable. Brush of some kind, such as tree prunings with the twigs left on, which have been preserved for this use, or that have been cut where conveniently obtained, serve a good purpose for the plants to climb in. Latterly great use has been made of wire netting to train the plants on, and it is well adapted to the service, not very expensive, and will last a number of years. If brush is used, stick it in alternately on each side of the row, or in the middle of a double row, and do it at once after sowing the seeds. If delayed until the plants are up there is danger that it will be too late, for if there is nothing for the little plants to cling to they will fall over, and then there is always trouble in getting them up. So, also, if wire netting is used it should be put up at planting time or just before. When there is a double row the netting is stretched through the middle between the two rows—the bottom of it about six inches from the ground, and the ends are fastened to two posts or stakes, one at each end of the row. The posts can stand about five or six feet high. Another way of trellising is to nail a cross-piece about a foot long to the top and bottom of each post, and then nail a wooden slat to the cross-pieces, below and above, and stretch strings up and down from the slats, making a diamond-work, string trellis.

Hoe the ground frequently along the rows while the plants are making their most rapid growth. If the weather is very dry at midsummer place some grass clippings, or straw, along on each side of the rows to keep the ground cool and prevent escape of moisture.

Cut the flowers as fast as they develop and do not let them go to seed; in this way the strength of the plants will be conserved, and they will bloom until frosts come.

* *

NIGHT BLOOMING FLOWERS,

EVERY one who possesses a garden should plan to have an entire bed of night blooming flowers. Those who are unaware of their delicate ethereal beauty will find as keen a pleasure in these plants as in the richest and gayest of the floral treasures that reveal their glories under the radiant sunshine. To those who have grown them no word of commendation is needed.

One of the best evening blooming

flowers is the moonflower, and it also possesses the merit of being the most rapid growing of all annual climbers. The white seeded moonflower bears enormous flowers of pure white, and a plant in full bloom is truly a beautiful sight to behold. At the north the seeds should be started early or the plants will not bloom before frost, but even if sown too late to flower they are well worth growing for their dense and handsome glossy, green foliage.

The evening primroses are also desirable; some of the flowers are yellow, others white: the former being exceedingly handsome, and the latter very large and attractive. These plants soon come into bloom from spring-sown seeds.

Nicotiana affinis and *N. decurrens* are too well known to need any description. Their large, pure white, bell-shaped flowers, on long slender stems, seem like floating censers of enchanting beauty and sweetness. Their odor is so exquisite one would grow them alone for this good quality, even if entirely lacking in all others. Seeds may be sown in the garden if preferred, but if planted earlier in the house the extra trouble will be more than repaid by early blooming flowers.

Datura, Sweet Nightingale, is another exquisite night bloomer with long snowy trumpet-shaped flowers, often five or six inches across at the top. To inhale their delicate fragrance is like drawing a breath in Eden, and a bed of these plants perfumes the night air for quite a distance. These are the best of the white evening bloomers.

There are also several very pretty colored varieties. *Mirabilis* Tom Thumb bears abundant flowers in many showy colors.

Mathiola bicornis is a member of the Ten Weeks Stock family, and possesses much of their sweet fragrance. The flowers are pinkish, in spikes, and abundantly produced.

In making a bed of these lovely flowers it should be located in front of the windows where the family usually sit in the evening.

MRS. S. H. SNIDER.

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"Last spring when the frost in this vicinity gave every berry blossom a black eye, I thought my prospect of getting a crop decidedly slim, but I found that they bloom two or three times, so I was happily disappointed in my crop after all.

"My advice to those broken down by close confinement to business is to invest in a berry bed, large or small, and see if Dame Health doesn't smile upon them."

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"Nothin' you want done around the house?"

"No."

"Well, then, madam, I makes bold ter ax you fer a piece of pie an' a cup of coffee."—*Pittsburg Chronicle Telegraph*,

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THE strawberry crop for 1895 was, taken all in all, the most unsatisfactory in many years. In the south there was a very large yield and prices ruled very low, and returns from northern markets were unsatisfactory. In the north and northwest frosts ruined nearly the entire crop, and the results were discouraging. These discouragements should teach care in cultivation and greater care in selecting varieties that are best adapted to soil and location, and above all the importance of mulching. In New Jersey and some other of the shore states where marsh hay can be secured it makes an excellent mulch. In the southern states I am well pleased with pine (tags) straw. In the west prairie hay and plenty of straw are thrown away. These make excellent mulch, but whichever is used great care should be taken that no grass or weed seeds that are liable to come up among the plants should be put on, if the bed has to stand over another year.

SELECTING VARIETIES.

This is very important and I cannot advise planting too many new and untried varieties. It is true strawberries are hardy and will succeed in any state, and every one who has the room should have a bed, if not more than 100 plants; this bed, with proper care, should supply any ordinary family, and by having the earliest and latest the season is prolonged, but some varieties will succeed better north than south and vice-versa. In order to find out which varieties are best adapted to a special location it is better to try them in a small way first. Varieties that have done best with me the past season are Rio, Murray and Earliest. The first two varieties are not only early, but are fine and most excellent shippers. Tennessee Prolific, Lady Thompson, Rio, and No Name are four of the best standard varieties and are well tested over the United States and Canada, and are rich in pollen. Babcock No. 5, Haverland, Warfield No. 2, and Crescent still hold their places among the pistillate varieties as old standards. Timbrell and Jessie, the two most lauded varieties, are simply of little or no value.

Of new ones, for late, Sunnyside is simply wonderful; its shape, color, size and productiveness is bound to please every one. I was first attracted to this berry by the report of the Geneva Experiment Station of New York in 1893. Of all the varieties on trial on their grounds it was the most productive; that, combined with its lateness, is sure to bring it to the front. On my soil we could pick ten quarts of berries to only one of Gandy. I can cheerfully recommend this berry to everyone.

FENDUCK. S.—This is a new berry not yet introduced. I have it on trial for the

past two years. It resembles the old Wilson very much and has a perfect blossom with beautiful dark green foliage, and its productiveness is simply wonderful. It is very early and leads all other berries in quality for early picking.

EARLIEST. S.—This is a seedling of Michel's Early and resembles it in plant and fruit, but is fully twice as productive, and a prettier berry is hard to find. I have fruited it two years now, and it is more productive the second year than the first, with berries fully as large. It is bound to please everyone who desires early berries.

CLARENCE. S.—This is one of the most peculiar berries I have ever seen. When it commences to ripen it has little scarlet streaks running all around it, and as soon as they appear it is ready to pick. It will keep for days and ripen all over alike in two days. It has one of the prettiest colors I ever saw, and so firm it will ship hundreds of miles, and for nearby markets you can pick it and let it stand over night and it will be in better shape than when first picked.

EDITH. P.—This is the largest berry I have yet seen, though I have not seen as large ones as Judge Samuel Miller of Bluffton, Mo., who wrote me last September that he measured one which was ten inches one way, and weighed two and three-fourths ounces.

CARRIE. P.—A seedling of Haverland that leads the parent, both in productiveness, size, color and firmness. It is the grandest strawberry I have yet seen. The berries lay in heaps and piles.

MURRAY.—This, though new, is attracting a great deal of attention. Where it fruited the past two years its earliness, combined with its large size and good shipping qualities made a great stir among our large commercial growers who depend upon an early market for best prices.

The following I must discard as of no value compared with new ones: Timbrell, Jessie, Swindle, Farnsworth, Sterling, Luella, Hatfield, Bessie, Stevens, Westbrooke, Accomac, Bidwell, Bomba, Parry, Bowman, Middlefield, Barton's Eclipse, Burt or Captain Jack, Daisy, Fellow, Glendale, Lady Rush, Summit, Governor Hoard, Sadie, Leader, Standard, Manchester, Phillip's Seedling, Lydia, Wilson, E. P. Roe and Monmouth. I hope growers will profit by the past years' experience, and plant more cautiously and with better care.

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.*.*

WE have just received the January issue of *The Coil Spring Hustler*, and find it full of interesting matter pertaining to fencing. If any of our readers are not receiving that paper a copy will be mailed them gratuitously by addressing the Page Fence Co., Adrian, Mich.

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THE COLUMBIAN RASPBERRY IN GEORGIA.

My Columbian Raspberries have outgrown anything I ever saw. What must I do with them—trim them or let them grow? They bore a few berries which did not mature well, but I suppose this summer they will do well in fruiting. They were only set out last spring. J. A.

It will be well for this season to drive a stake near each plant and carefully lift the shoots and tie them to it. The stems can then be shortened to a height of three or three and a half feet. Another year the canes will be strong and will not need support.

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Creek at morning, when heaven's searchlight teeters up over the shoulder of Pike's Peak, catching the summit of Sangre de Christo range and burning its way down to the base, showing every gorge and peak—almost every pinion—fifty miles away, is worth crossing the Atlantic to see. More gorgeous still is the scene at evening, when the sun teeters down across the western range and burns its way up to the top of Pike's Peak, turning the trees to torches and the crags and spires to splinters of gold. The thousands of tourists who will go to the top of the Peak next summer can, by the aid of their glasses, look down into these great gold fields and count a half dozen busy towns, holding no less than 25,000 souls, that have been built up round the original camp of the cripples.—From "The Story of Cripple Creek," by Cy Warman, in the February Review of Reviews.

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